

Recurrence of Abdominal Aortic Aneurysm, Rare Complication of Disease

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Abstract

Background: Abdominal aortic aneurysm (AAA) is one of vascular surgery challenges, because of its differences in decision making about time and type of surgery (open vs. endovascular).

Case Report: We have case of patient with old pulmonary tuberculosis came with recurrence of AAA after open surgery. We decided to perform endovascular treatment, but there was an anatomical difficulty for device selection.

Conclusions: Although recurrence of AAA is rare, it has more diagnostic and therapeutic challenge. Recurrence after open surgery occurs less than endovascular surgery. Treatment after open surgery is better to be conducted with endovascular manner, because of general condition of patient and probable difficult abdomen due to adhesion of previous laparotomy.

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Introduction

Incidence of intra-abdominal para-anastomotic aneurysms after abdominal aortic aneurysm (AAA) bypass grafting ranges from 1% to 15%. Para-anastomotic aneurysms are classified as either pseudoaneurysms (presumed disruption of the anastomotic suture line) or true aneurysms (widening of the adjacent aorta). True aneurysms occur only after repair of an abdominal aortic aneurysm, whereas pseudoaneurysms are more frequent after bypass for occlusive disease (1).

Recurrence of abdominal aortic aneurysm can occur after open or endovascular repair; endovascular discussion is out of our scope.

Aortic dilation after primary repair has many causes:

1. Seroma: Re-expansion of an aortic aneurysm sac after conventional aortic aneurysm repair is rare (2). After graft implantation, aneurysm sac will diminish gradually, but persists for at least 6 months. Usually, the transverse diameter is bigger than the antero-posterior diameter. If the aneurysm sac enlarges and becomes rounded and distended with an inhomogeneous interior, it might be a sign of serious conditions (2,3).

2. Pseudoaneurysm: Pseudoaneurysm is the most common cause of graft failure. The incidence of anastomotic pseudoaneurysms is < 1% to 10% at 6 years, 1% to 10% at 10 years, and 20% at 15 years, depending on the study (4-6).

3. Meta-chronous aneurysms: Although open

repair of AAA treats the diseased segment, but it cannot fix the underlying defect. Therefore, new aneurysms occurs in proximal and distal to the site of operation (7).

4. Vasculitis [Behcet's syndrome, systemic lupus erythematosus (SLE), rheumatic arthritis (RA), Takayasu arteritis, and Cogan syndrome]: Recurrence is rare in patients with SLE and Takayasu arthritis, demonstrates patients with a younger age and more rapid growth and more irregularly in shape (8).

5. There is significant association between preoperative hypertension and recurrent AAA (9).

Due to above reasons, all patients with AAA should be subject to periodic follow-up after repair.

Case Report

Fifty-six-year-old man, a known case of pulmonary tuberculosis, presented with a ruptured AAA repaired by surgical graft repair. The pathology examination of aneurysm sac was negative for tuberculosis despite of bizzar and unusual shape of aneurysm. The patient referred with abdominal pain 30 month later. Angiography showed a 42-mm para-anastomotic pseudoaneurysm, and slight kinking of the two legs in the Dacron graft (distal to the aortic bifurcation) (Figure 1).

Endovascular option was chosen for treatment. We had an anatomical challenge (length from the renal arteries to the bifurcation of the Dacron was only 74 mm).

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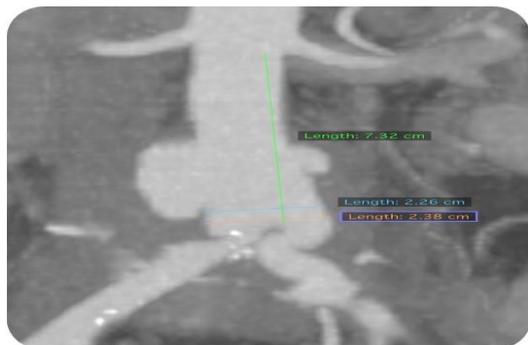


Figure 1. Recurrence of Aneurysm



Figure 4. Increased size of aneurysm

Cook and Medtronic shorter main bodies are 70 mm, so we ordered the manufacture a custom-made device with a main body length of 50 mm, with an inverted contralateral limb for adequate overlap with the iliac extension (Figures 2 and 3).

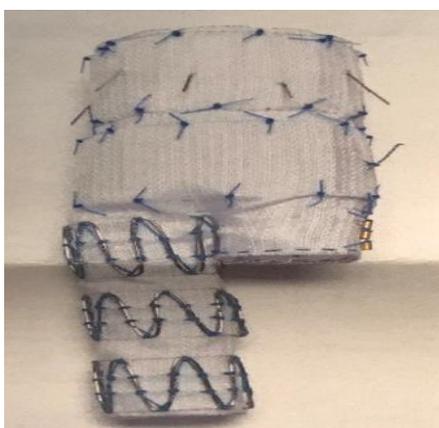


Figure 2. Custom-made device

After 3 weeks, patient presented with severe abdominal pain and computed tomography angiography (CTA) confirmed massive expansion from 42 mm to 76 mm, and complete occlusion of the right iliac limb (potentially due to saccular shape of the AAA placing massive pressure on the right common iliac) (Figures 4 and 5). Therefore, the patient was admitted to intensive care unit (ICU) for close observation.

Fortunately, the device was ready soon. The patient was transferred to angiography suite with concomitant preparation for surgical intervention. Right limb occlusion was recannulated, and balloon angioplasty was done, followed by endovascular repair (EVAR) with the custom-made device (Figures 6-9). After the procedure, abdominal pain was resolved, and the patient was discharged few days later.

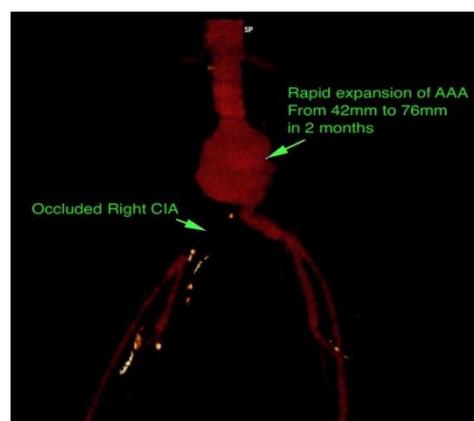


Figure 5. Increased size of aneurysm

Discussion

Recurrence of AAA occurs after open and endovascular repair. Unlike endovascular repair, recurrence after open repair is rare, and mostly occurs at para-anastomotic site and in patients with collagen-vascular disease.

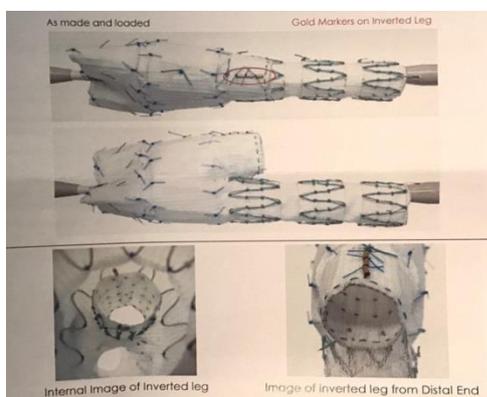


Figure 3. Custom-made device



Figure 6. Cannulation of occluded limb



Figure 7. Cannulation of occluded limb from lateral view

So, follow up of patients after aneurysm repair is recommended. Recurrence after endovascular repair is more common, and re-stenting is treatment of choice.



Figure 8. Endovascular aortic repair (EVAR) procedure

There are multiple factors to decide how to operate aneurysm repair. Because of low risk procedure, the general condition of patients, and difficult abdomen due to adhesions in some instances, it seems that endovascular repair is a better choice for patients underwent open repair of AAA.



Figure 9. Endovascular aortic repair (EVAR) procedure (end of procedure)

Our patient was a 56-year-old man with old pulmonary tuberculosis and recurrence of AAA. CT scan increases the probability of meta-choronous aneurysm. We were about military tuberculosis despite of past negative pathology.

However, because of patient's respiratory function, and the guess of the presence of difficult abdomen, we decided to operate our patient with EVAR. In addition, we had a challenge of choosing a conventional device because of anatomical factor. Hence, we asked for help from Cook Company to manufacture a custom-made device. The delivery of device was successful, and the follow-up of patient after 6 month was good.

Conclusion

Although recurrence of AAA after open surgery is rare, it is important, and has challenging treatment options. Close observation of such patients, because of the nature of recurrence that may be rapid expandable, is so important. We recommend EVAR as soon as possible.

Conflict of Interests

Authors have no conflict of interests.

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